

**ISOBUTYLENE**

Gen. Variant: SDS\_US\_GHS

Version 1.0

Revision Date 08/25/2014

Print Date 01/23/2016

SDS No.: BE112

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : ISOBUTYLENE  
CAS Number: 115-11-7  
Chemical characterization : Alkenes  
Chemical Name : Isobutylene  
Synonyms : Isobutene, Unsaturated Butene, 2-Methylpropene

Use of the Substance/Mixture : Manufacture of substances, Use as intermediate

Company : Lyondell Chemical Company  
LyondellBasell Tower, Suite 300  
1221 McKinney St.  
P.O. Box 2583  
Houston Texas 77252-2583

Telephone : Customer Service 888 777-0232  
Product Safety 800 700-0946

Emergency telephone : CHEMTREC USA 800-424-9300  
LYONDELL 800-245-4532

E-mail address : product.safety@lyondellbasell.com

**SECTION 2. HAZARDS IDENTIFICATION****GHS Classification**

Flammable gases  
Gases under pressure  
Acute aquatic toxicity  
Simple Asphyxiant

Category 1  
Liquefied gas  
Category 3

GHS Classification Scale (1= severe hazard; 4= slight hazard)

**Label elements**

Hazard symbols :



Signal Word : Danger

Hazard Statements : H220 Extremely flammable gas.  
H280 Contains gas under pressure; may explode if heated.  
H402 Harmful to aquatic life.  
May displace oxygen and cause rapid suffocation.

Precautionary Statements : **Prevention**  
P210 Keep away from heat, hot surfaces, sparks, open

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flames and other ignition sources. No smoking.

P273 Avoid release to the environment.

**Response**

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381 Eliminate all ignition sources if safe to do so.

**Storage**

P410 + P403 Protect from sunlight. Store in a well-ventilated place.

**Other hazards**

No additional information available.

**3. Composition/information on ingredients****Substances****Ingredients**

Chemical Name	CAS-No. EC-No.	Weight %	Component Type
Isobutylene	115-11-7	>= 99.0 %	A

Key:

(A) Substance

**SECTION 4. FIRST AID MEASURES****First aid procedures**

General advice

: This product is of low acute toxicity.  
Simple asphyxiant, high concentrations can displace oxygen and cause drowsiness and dizziness.  
Sudden release of this material from pressurized vessels may result in cryogenic burns (frostbite).  
Remove contaminated clothes except in the case of frostbite.  
Always observe self-protection methods  
Move out of dangerous area.  
Get medical attention immediately.  
Show this material safety data sheet to the doctor in attendance.

If inhaled

: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
Do not leave the victim unattended.  
Keep patient warm and at rest.

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Immediately seek medical attention.  
If breathing is difficult, give oxygen.  
If unconscious place in recovery position and seek medical advice.  
In the event of unconsciousness, apnea or cardiac arrest (no pulse), apply cardiopulmonary resuscitation.

- In case of skin contact : Non-irritating to the skin.  
Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.  
If frostbite has occurred, seek medical attention immediately; do not rub the affected area or flush with water. To prevent further damage, do not attempt to remove frozen clothing from affected area. If frostbite has not occurred, immediately and thoroughly wash contaminated skin with soap and water.
- In case of eye contact : This gas is non-irritating; but direct contact with liquified/pressurized gas or frost particles may produce severe and possibly permanent eye damage from freeze burns.  
If eye tissue is frozen, seek medical attention immediately. If tissue is not frozen, thoroughly flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation persists seek medical attention.
- If swallowed : This substance is a gas with a low boiling point; hence, oral exposure and resulting acute toxicity are unlikely.

**Notes to physician**

- Symptoms : High vapor concentrations may cause central nervous system (CNS) depression with symptoms such as nausea, dizziness, weakness, headache, loss of coordination, loss of consciousness, coma and death.
- Hazards : Simple asphyxiant.  
Skin or eye contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.
- Treatment : Treat symptomatically.  
Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.  
Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias (irregular beating) in persons exposed to this material.  
Treat frost-bitten areas as needed.

**SECTION 5. FIRE-FIGHTING MEASURES****Flammable properties**

Flash point : -105 °F (-76 °C)

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Autoignition temperature : 869 °F (465 °C)

Lower explosion limit : 1.8 vol%

Upper explosion limit : 9.6 vol%

**Fire fighting**

Suitable extinguishing media : SMALL FIRE: Use dry chemicals, CO2  
LARGE FIRES:  
Use water spray or fog

Unsuitable extinguishing media : Do not use solid water stream - may spread fire.

**Protective equipment and precautions for firefighters**

Specific hazards during fire fighting : Eliminate all sources of ignition.  
Releases extremely flammable vapors well below ambient temperatures.  
When exposed to ignition source in air, vapors can burn in open or explode if confined.  
Potential explosion hazard from reignition, if fire is put out without shutting off source.  
May travel long distances along the ground before igniting and flashing back to vapor source.  
Heat/contamination can release extremely flammable isobutylene gas.  
Metal corrosion may generate flammable hydrogen gas.  
DO NOT extinguish a leaking gas fire unless leak can be stopped. Explosive atmosphere could form. Evacuate area and fight fire from a maximum distance or use unmanned hose holders or monitor nozzles. Containers can build up pressure if exposure to heat; cool with flooding quantities of water until well after the fire is out. DO NOT direct water at source of leak or pressure relief devices, icing may occur. Withdraw immediately in case of rising sound from venting safety devices or discoloration of vessel. Always stay away from the ends of "bullet" tanks.  
Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.  
Move containers from fire area if it can be done without risk. Cool containers with flooding quantities of water until well after fire is out.  
For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

Special protective equipment for fire-fighters : Wear positive pressure self-contained breathing apparatus (SCBA).  
Structural firefighter's protective clothing will only provide limited protection.  
Always wear thermal protective clothing when handling refrigerated/cryogenic liquids.

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**SECTION 6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions : Use personal protective equipment.  
Ensure adequate ventilation.  
Eliminate all sources of ignition.  
Evacuate personnel to safe areas.  
Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
- Environmental precautions : Prevent product from entering drains.  
Prevent further leakage or spillage if safe to do so.  
If the product contaminates rivers and lakes or drains inform respective authorities.  
An authoritative evaluation of environmental exposure and risk indicates that no special risk management practices are needed to control environmental release.
- Methods for containment /  
Methods for cleaning up : Extremely flammable.  
Release causes immediate fire/explosion hazard.  
Eliminate all sources of ignition.  
Isolate area until gas has dispersed.  
Water spray may reduce vapor; but may not prevent ignition in closed spaces.  
All equipment used when handling this product must be grounded.  
Do not touch or walk through spilled material.  
Stop leak if you can do it without risk.  
If possible, turn leaking container so that gas escapes rather than liquid.  
Use water spray to reduce vapors; do not put water directly on leak, spill area or inside container.  
Prevent spreading of vapors through sewers, ventilation systems and confined areas.  
Isolate area until gas has dispersed.  
Caution: When in contact with refrigerated/cryogenic liquids, many materials become brittle and are likely to break without warning.  
Report per regulatory requirements.

**SECTION 7. HANDLING AND STORAGE****Handling**

- Advice on safe handling : All electrical equipment/practices must conform with appropriate codes.  
Use proper pressure reducing regulator when connecting to lower pressure service.  
Prevent entrapment of liquid in closed systems/if applicable use check valves to prevent backflow.  
Sudden release of this material from pressurized vessels may result in cryogenic burns (frostbite).  
If inspection shows cylinders in poor condition, immediately contact supplier.

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Handle empty containers with care; vapor/residue may be extremely flammable.  
Isolate, vent, drain, wash and purge systems or equipment before maintenance or repair.  
Eliminate all sources of ignition.  
Check atmosphere for explosiveness and oxygen deficiencies.  
Wear recommended personal protective equipment.  
Observe precautions pertaining to confined space entry.  
Keep away from all sources of ignition.  
Keep away from direct sunlight.  
Electrostatic charges may be generated as a result of flow or agitation.  
All equipment must conform to applicable electrical code.  
Use only non-sparking tools.  
Do not pressurize, cut, weld, braze solder, drill, or grind on containers.  
While moving cylinder, always keep in place removable valve cover.  
Securely chain cylinders when in use and protect against physical damage.  
Do not enter areas where used or stored until adequately ventilated.

Advice on protection against fire and explosion : Take precautionary measures against static discharge.

**Storage**

Requirements for storage areas and containers : Store only in well ventilated, easily accessible area, away from heat/spark and open flame.  
Store cylinders outdoors without direct sunlight or heat radiation and with adequate ventilation. Provide electrical equipment with spark resistant construction.  
Ensure that all relevant regulations regarding explosive atmospheres, and handling and storage facilities of flammable products are followed.

**8. Exposure controls/personal protection****Control parameters****Ingredients with workplace control parameters****Occupational Exposure Limits**

Ingredients	CAS-No.	Type	Limit Value	Basis Revision Date	Additional Information
Isobutylene	115-11-7	TWA	250 ppm	US (ACGIH) 2012	

Consult local authorities for acceptable exposure limits.

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**Exposure controls****Engineering measures**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits.

Use explosion-proof ventilation equipment.

Electrical equipment should be grounded and conform to applicable electrical code.

**Personal protective equipment**

Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hand protection : Leather gloves should be worn when handling material.

Eye and face protection : Wear safety glasses as minimum eye protection. Conditions may warrant the use of chemical goggles and possibly a face shield. Consult your standard operating procedure or safety professional for advice. Use protective eye and face devices that comply with ANSI Z87.1-1987.

Skin and body protection : When skin contact is possible, protective clothing including gloves, apron, sleeves, boots, head and face protection should be worn.  
Fire retardant clothing is appropriate for routine occupational use.  
The equipment must be cleaned thoroughly after each use.

Hygiene measures : Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the hazards and/or potential hazards that may be encountered during use.  
Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.  
Use good personal hygiene practices.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES****Appearance**

Physical state : Liquified gas.  
gaseous at 68 °F (20 °C) (1,013 hPa (760 mm Hg))

Color : Clear, colorless.

Odor : Slight sweet odor.

**Safety data**

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Flash point	: -105 °F (-76 °C)
Lower explosion limit	: 1.8 vol%
Upper explosion limit	: 9.6 vol%
Flammability (solid, gas)	: Extremely flammable gas.
Oxidizing properties	: Not considered an oxidizing agent.
Autoignition temperature	: 869 °F (465 °C)
Molecular weight	: 56.11 g/mol
Decomposition temperature	: not determined
pH	: Not applicable.
Melting point/range	: -221.3 °F (-140.7 °C)
Boiling point/boiling range	: 19.6 °F (-6.9 °C) at 1,013 hPa (760 mm Hg)
Vapor pressure	: 2,560 - 2,580 hPa (1,920 - 1,935 mm Hg) at 68 °F (20 °C)
Density	: 0.59 g/cm <sup>3</sup> at 68 °F (20 °C) (Air = 1.0)
Water solubility	: 263 mg/l at 77 °F (25 °C)
Partition coefficient: n-octanol/water	: log Pow: 2.34
Viscosity, kinematic	: Not applicable
Relative vapor density	: 1.94 (Air = 1.0)
Explosive properties	: Not considered explosive
Remarks - Other information	: No additional information available.

**SECTION 10. STABILITY AND REACTIVITY**

Reactivity	: Stable under recommended storage conditions.
Chemical stability	: Stable

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Conditions to avoid	: Heat, sparks, open flame, other ignition sources, and oxidizing conditions.
Materials to avoid	: Halides. Hydrogen. Halogens (bromine, chlorine, fluorine). Strong oxidizing agents. Aluminum chloride.
Hazardous decomposition products	: Carbon Monoxide and Carbon dioxide.
Thermal decomposition	: Thermal decomposition may produce carbon monoxide and other toxic vapors.
Hazardous reactions	: Not expected to occur. Stable.

**SECTION 11. TOXICOLOGICAL INFORMATION**

**Product Summary** : The below given information is based on the assessment of the product including impurities.

**Acute toxicity**

**Acute oral toxicity** : Not applicable

**Acute inhalation toxicity** : Based on acute toxicity values, not classified.

: LC50: > 10000 ppm  
Species: Rat

**Acute dermal toxicity** : Not applicable

**Skin corrosion/irritation** : Not classified

: Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

**Serious eye damage/eye irritation** : Not classified

: Contact with liquid may cause frostbite.

**Respiratory or skin sensitization** : Respiratory sensitization  
Not applicable

: Skin sensitization  
Not applicable

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**Chronic toxicity**

**Carcinogenicity** : Not classified  
Contains a substance that has a positive carcinogenicity study.  
The weight of evidence for the carcinogenicity of this substance does not meet the criteria for classification.

**Germ cell mutagenicity** : Not classified  
No adverse effect observed.

**Reproductive toxicity**

**Effects on fertility /  
Effects on or via lactation** : Not classified  
No adverse effect observed.

**Effects on Development** : Not classified  
No adverse effect observed.

**Target Organ Systemic  
Toxicant - Single exposure** : Based on single exposure toxicity values, not classified.  
: High concentrations may cause central nervous system depression.

**Target Organ Systemic  
Toxicant - Repeated  
exposure** : Based on repeated exposure toxicity values, not classified.

**Aspiration hazard** : Not applicable.

**12. ECOLOGICAL INFORMATION****Ecotoxicology Assessment**

**Acute aquatic toxicity** : Classified  
Harmful to aquatic life.

**Chronic aquatic toxicity** : Not classified  
QSAR (Quantitative structure-activity relationship) based calculation predicts low chronic toxicity.

**Toxicity to fish** :  
Harmful to fish.

: LC50: 28.9 mg/l

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Exposure time: 96 HOURS

Species: Fish

(QSAR calculated value)

**Toxicity to daphnia and other aquatic invertebrates**

: Harmful to aquatic invertebrates

: LC50: 16.8 mg/l

Exposure time: 48 HOURS

Species: daphnids.

(QSAR calculated value)

**Toxicity to algae**

: Harmful to algae.

: EC50: 13.6 mg/l

Exposure time: 96 HOURS

Species: green algae.

(QSAR calculated value)

**Toxicity to bacteria**

: no data available

**Toxicity to fish (Chronic toxicity)**

: Predicted low chronic toxicity to fish (QSAR)

**Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**

: Predicted low chronic toxicity to aquatic invertebrates (QSAR)

**Persistence and degradability****Biodegradability**

: Expected to be biodegradable

: Photodegradation following atmospheric release is expected to be the most significant route of degradation in the environment.

**Bioaccumulative potential****Bioaccumulation**

: This material is not expected to bioaccumulate.

: Bioconcentration factor (BCF): 16.25

Method: (QSAR calculated value)

**Mobility in soil****Distribution among environmental compartments**

: Stability in soil

Low potential for soil adsorption expected

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: Stability in water  
Not expected to hydrolyze readily.

**Additional advice** : No additional information available.  
**Environmental fate and pathways**

**Results of PBT and vPvB assessment**

Not applicable.

**Other adverse effects**

**Additional ecological information** : No additional information available.

**SECTION 13. DISPOSAL CONSIDERATIONS**

Further information : Preferred disposal for this volatile, flammable product is through combustion.  
Contaminated product/soil/water/empty containers may be U.S. Resource Conservation and Recovery Act (RCRA)/U.S. Occupational Safety and Health Administration (OSHA) hazardous waste due to possible presence of flammable gases.  
(See 40 U.S. Code of Federal Regulations (CFR) 261 and 29 CFR 1910).  
Landfill solids at permitted sites.  
Use registered transporters.

**SECTION 14. TRANSPORT INFORMATION****DOT**

UN number : 1055  
Description of the goods : Isobutylene  
Class : 2.1  
Labels : 2.1

**SECTION 15. REGULATORY INFORMATION**

If identified components of this product are listed under the TSCA 12(b) Export Notification rule, they will be listed below.

**SARA 302/304**

This product contains no known chemicals regulated under SARA 302/304.

**SARA 311/312**

Based upon available information, this material is classified as the following health and/or physical

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**SARA 311/312**

hazards according to Section 311 &amp; 312:

Immediate/Health

Fire Hazard.

Sudden Release of Pressure.

**SARA 313**

This product contains no known chemicals regulated under SARA 313.

**State Reporting**

This material contains the following chemical substance at very low levels which is regulated under California Proposition 65. However, it is the responsibility of the California business owner to develop his or her own regulatory compliance plan. Contact Product Safety for further information at [product.safety@lyondellbasell.com](mailto:product.safety@lyondellbasell.com).

Substance	CASRN	Type of Toxicity			
		Carcinogen	Developmental	Repro-Male	Repro-Female
Acetaldehyde	75-07-0	X			

This product contains the following chemicals regulated by New Jersey's Worker and Community Right to Know Act:

115-11-7 Isobutylene

This product contains the following chemicals regulated by Massachusetts' Right to Know Law:

115-11-7 Isobutylene

This product contains the following chemicals regulated by Pennsylvania's Right to Know Act:

115-11-7 Isobutylene

**Other international regulations****Global Inventory Status**

The ingredients of this product are compliant with the following chemical inventory requirements or exemptions.

\*Additional Explanatory Status Statements follow the table, as necessary.

Country/Region	Inventory	Status Description
Australia	AICS	Compliant
Canada	DSL	Compliant
China	IECSC	Compliant
Europe	REACH	See REACH Compliance Statement
Japan	ENCS	Compliant
Korea	KECI	Compliant
New Zealand	NZIoC	Compliant
Philippines	PICCS	Compliant
United States of America	TSCA	Compliant

*REACH status*

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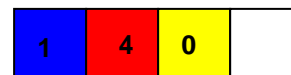
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*If the product has been purchased from any company of the LyondellBasell group of companies registered in the European Union, we confirm that the chemical substance in this product has been pre-registered or, where required under REACH, registered, and that we have the intention to proceed with any required registration in accordance with the deadlines set forth in REACH. (Regulation (EU) No. 1907/2006)*

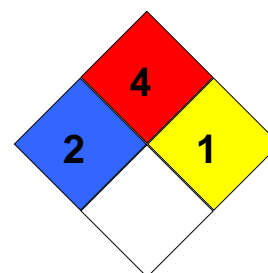
Contact [product.safety@lyondellbasell.com](mailto:product.safety@lyondellbasell.com) for additional global inventory information.

**SECTION 16. OTHER INFORMATION****Further information****HMIS Classification**

: Health Hazard: 1  
Flammability: 4  
Physical hazards: 0

**NFPA Classification**

: Health Hazard: 2  
Fire Hazard: 4  
Instability: 1

**Other Information**

HMIS rating scale (0 = minimal hazard; 4 = severe hazard)

NFPA rating scale (0 = minimal hazard; 4 = severe hazard)

**Material safety datasheet sections which have been updated:**

Updated format ; Revised Section(s): 1 - 16 August 18 2014

**Disclaimer**

This document is generated for the purpose of distributing health, safety, and environmental data.

Information is correct to the best of our knowledge at the date of the SDS publication.

It is not a specification sheet nor should any displayed data be construed as a specification.

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This product(s) may not be used in:

(i) any U.S. FDA Class I, Health Canada Class I, and/or European Union Class I medical devices, without prior notification to Seller for each specific product and application; or (ii) the

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